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MOLECULAR MECHANISMS OF NEURONAL RESPONSIVITY(U)  
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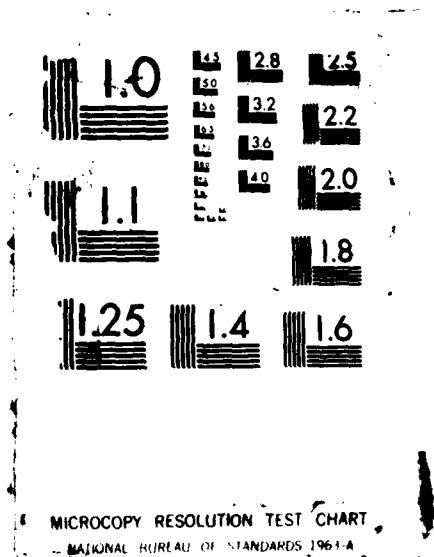
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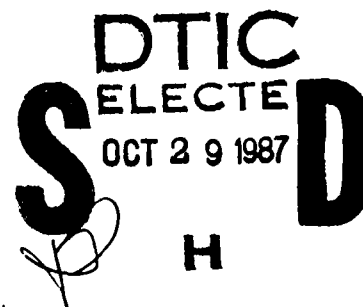


AFOSR-TK- 87 - 1463

July 10, 1987

Dr. William O. Berry  
Program Manager  
Directorate of Life Sciences  
Air Force Office of Scientific Research/NL  
Bolling Air Force Base  
DC 20332-6448

RE: AFOSR Grant 86-0089  
Final Scientific Report.



Dear Dr. Berry:

Under the terms of the grant referenced above, I summarize here the scientific aspects of the activities supported by this funding. The grant was awarded to support the organization of a scientific conference entitled:

"Molecular Mechanisms of Neuronal Responsivity."

This conference was held at the College of Medicine, University of Vermont on March 21-23, 1986. The preliminary list of speakers who accepted our invitation to participate in this conference during the fall of 1985 already represented a program of a quality needed for official recognition by the American Society for Neurochemistry (ASN), and the conference was organized as a satellite symposium to the seventeenth annual meeting of this national society. Thus, in addition to our own advertising, announcements of the Conference were included in several mailings and Newsletters of the ASN, and provided national and international exposure. The response was highly satisfactory with extensive preregistration. The Final Registration List is enclosed with this report, including 124 registrants in addition to invited speakers, organizers, and local students.

The scientific program was organized by Drs. Y. Ehrlich, R. Lenox, and W. Berry, who also served as sessions' chairmen. The first scientific session offered a keynote address by Dr. Rodolfo L'linas from the University of New York, on: "Synaptic Transmission and Neuronal Integration." It should be mentioned that this presentation emerged as a most successful choice for a keynote address. Dr. L'linas's vivid lecture focused on the physiology of calcium action in

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06.01			Neuronal Responsiveness; neuropeptides; second messengers; Phosphorylation; Receptors, Behavior, Signal Transduction		
19 ABSTRACT (Continue on reverse if necessary and identify by block number) A conference on Molecular Mechanisms of Neuronal Responsiveness was held at the University of Vermont on March 21-23, 1986. In addition to the 20 invited presentations, 26 contributed posters were presented. The meeting was highly successful in outlining current research on molecular mechanisms, and in pointing out exciting new areas for research. Thirty-nine papers from the meeting will be published by Plenum Press in their series: Advances in Experimental Medicine and Biology.					
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neuronal communication. Indeed, the involvement of  $Ca^{++}$ -ions in various aspects of neuronal responsiveness constituted a central point in the presentations of almost each one of the subsequent speakers.

The other scientific sessions of the conference were offered under the following titles:

- A. Molecular Mechanisms of Signal Transduction
- B. Model Systems and Identified Cells
- C. Behavioral and Clinical Implications

The following speakers presented invited lectures:

David R. Sibley, representing the laboratory of Dr. Robert Lefkowitz from Duke University Medical Center, on: "Regulation of Beta-Adrenergic Receptor Function."

Bernard W. Agranoff from the University of Michigan on: "Receptor-Mediated Phosphoinositide Metabolism."

Daniel L. Alkon from the Marine Biological Laboratory, NINCDS-NIH on: "Biochemical Pathways for Regulation of Membrane Channels."

Howard Rasmussen from Yale University on: "The Calcium Messenger System of Hormonally-Responsive Cells."

Paul Greengard from The Rockefeller University on: "Role of Synapsin I and Other Neuronal Phosphoproteins in Intercellular Communication."

Leonard G. Davis from the E.I. duPont de Nemours & Company on: "Regulation of Neuropeptide mRNA in discrete Brain Regions."

Eduardo G. Lapetina from Burroughs Wellcome Co. on: "Inositol Phospholipids and GTP-Binding Proteins in Signal Transduction in Stimulated Human Platelets."

Richard J. Wurtman from the Massachusetts Institute of Technology on: "Tyrosine Availability: A Presynaptic Factor Controlling Catecholamine Release."

Yigal H. Ehrlich from The University of Vermont on: "Role for Extracellular Protein Phosphorylation Systems in Neuronal Function."

Samuel Weiss from Centre CNRS-INSERM, France, on: "Glutamate Receptors of CNS Neurons in Primary Culture."

Mark W. Bitensky from Los Alamos National Laboratories on: "A Light Activated Retinal Phosphodiesterase: Role in Visual Transduction."

Gary Lynch from the University of California, Irvine, on: "Possible Biochemical Intermediates in the Production of Synaptic Plasticity."

Aryeh Routtenberg from Northwestern University on: "Enhanced Synaptic Reactivity Linked to Protein Kinase C Activity."

Loes Schrama, representing the laboratory of Dr. W.H. Gispen, from the and/or



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Institute on Molecular Biology, Utrecht, the Netherlands, on: "The Role of Protein Kinase C in ACTH-Induced Excessive Grooming."

Philip Skolnick from the National Institutes of Health on: "What is the Physiological Role of the Benzodiazepine Receptor Complex?"

Elizabeth Kornecki from the University of Vermont on: "Interactions of Triazolobenzodiazepines with the Alkyl Ether Lipid, Platelet Activating Factor."

William C. Taft, representing the laboratory of Dr. R.J. DeLorenzo, from the Medical College of Virginia on: "Involvement of CaM Kinase II in Seizure Development."

Nicolas G. Bazan from Louisiana State University on: "Polyunsaturated Fatty Acids at the Synapse and Neuronal Responsivity."

Robert H. Lenox from The University of Vermont on: "Role for Receptor Coupling to Phosphoinositide Metabolism in the Therapeutic Action of Lithium."

Fridolin Sulser from Vanderbilt University on: "The 5HT/NE Link Hypothesis of Affective Disorders: Receptor-Receptor Interactions in Brain."

Each presentation was followed by a discussion period and the interaction between speakers and audience was most informative.

In addition to invited presentations, the conference program included twenty-six (26) contributed papers, presented in a poster session. The posters remained in display throughout the days of the conference and scientific interactions took place at the poster area also during all coffee and meal breaks.

The Office of Continuous Medical Education of the University of Vermont, headed by Ms. Maureen Hanagan, was most efficient in the administrative organization of the conference. They also conducted a survey of attendee's evaluation of the symposium. Overall, the meeting was rated as "highly successful," and the evaluation of individual presentations were rated mostly as 4 or 5 on a scale of 0 to 5 (5 being the highest score).

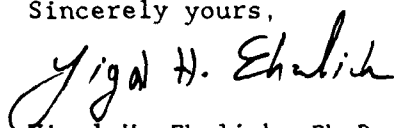
A syllabus was distributed to all the registrants of the conference, including the listing of scientific sessions, summaries of speakers' presentations, and abstracts of all poster presentations. A copy of the syllabus is enclosed with this Final Report.

We have no doubt that the scientific program of this conference was most timely, stimulating and informative. The papers presented by most speakers were very relevant to the various research programs supported by the AFOSR. Furthermore, it appears that the molecular mechanisms of neuronal responsiveness discussed here operate not only in short-lived responses, but also in processes underlying synaptic plasticity, as evidenced in several presentations during another conference supported by the AFOSR, held at Woods Hole in APR/MAY, 1987. Thus, this exchange of updated information has been most valuable for the speakers and registrants of our conference. To assure that this information will be available to the general scientific community, the proceedings are being published by PLENUM PRESS as a volume in their prestigious series: Advances in

Experimental Medicine and Biology. Since most libraries in Medical Schools subscribe to this series, widespread distribution is expected. The volume has been edited by Y.H. Ehrlich, R.H. Lenox, E. Kornecki, and W.O. Berry. All the chapters were typed centrally at the University of Vermont and the use of a word-processor assured uniform appearance. A copy of the Table of contents of the volume, listing all the authors and chapter titles is enclosed with this report.

In closing, we wish to express again our gratitude to the Air Force Office of Scientific Research for providing the support without which this conference could not have attained the success attested by its speakers and attendees. One of the major benefits of the symposium was in pointing out specific areas in which continuing research in this line of investigation should be focussed upon. We believe that the impact of the conference and its published proceedings will enhance the progress of research on the molecular mechanisms of neuronal responsiveness.

Sincerely yours,

A handwritten signature in cursive script that reads "Yigal H. Ehrlich". The signature is written in dark ink and is positioned above the typed name.

Yigal H. Ehrlich, Ph.D.  
Associate Professor of  
Psychiatry and Biochemistry

YHE/ssb

Enclosures

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March 21 - 23, 1986

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MOLECULAR MECHANISMS  
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U. S. Air Force Office of Scientific Research

Bolling A. F. Base, D. C.

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